

**OPTICAL TRANSMITTER INCLUDING A LINEAR
SEMICONDUCTOR OPTICAL AMPLIFIER**

ABSTRACT OF THE DISCLOSURE

An improved optical transmitter comprises a vertically lasing semiconductor optical amplifier (VLSOA) coupled to an external modulator and/or a laser source. The VLSOA, external modulator and laser source are discrete devices or alternatively integrated onto a common substrate. The integrated optical transmitter may be fabricated using a number of different methods, including based on selective area epitaxy, impurity induced disordering, etch and fill and silicon optical bench.

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